Application No. 10/576,701

Paper Dated: June 11, 2010

In Reply to USPTO Correspondence of April 13, 2010

Attorney Docket No. 0702-061238

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Currently Amended): A suspension that can be used to generate a current of electrons, which suspension comprises a polypeptide, wherein the polypeptide is entrapped in a hollow particlea plurality of hollow particles in electrically conductive contact, said hollow particles comprise a substrate permeable and electrically conductive outer shell and entrapped therein a redox-reaction catalyzing enzyme catalyzing an enzymatic conversion of said substrate in said hollow particles thereby liberating electrons.

2-6. (Cancelled).

- 7. (Currently Amended): The suspension according to elaim 6, wherein the hollow particle comprises conductive polymerclaim 1, wherein the substrate permeable and electrically conductive outer shell comprises a polymer.
- 8. (Currently Amended): The suspension according to claim 7, wherein the hollow-particlepolymer comprises a block-copolymer.
- 9. (Original): The suspension according to claim 8, wherein the block-copolymer comprises a hydrophobic polystyrene block and a hydrophilic polyisocyanopeptide.
- 10. (Previously Presented): The suspension according to claim 8, wherein the block-copolymer comprises polystyrene-*b*-poly(L-isocyanoalanine(2-thiophen-3-yl-ethyl)amide) (PS-PIAT).
- 11. (Original): The suspension according to claim 8, wherein side groups present on the block-copolymer are polymerized.

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12. (Original): The suspension according to claim 10, wherein the thiophene side groups present in the side chain of polystyrene-*b*-poly(L-isocyanoalanine(2-thiophen-3-yl-ethyl)amide) are polymerized.

13. (Currently Amended): The suspension according to claim 1, wherein the enzyme comprises a polypeptide, wherein the polypeptide is linked to the inner side of the hollow particleparticles.

14-18. (Cancelled).

- 19. (Currently Amended): The suspension according to <u>elaim 16claim 1</u>, wherein the enzyme is glucose oxidase.
- 20. (Currently Amended): The suspension according to claim 19, wherein the hollow particle is particles are permeable to a substrate of glucose oxidase.
- 21. (Currently Amended): The suspension according to claim 20, wherein the hollow particle is permeable to substrate is glucose.
- 22. (Currently Amended): The suspension according to claim 1, wherein the hollow particle is particles are embedded in a gel-like structure.
- 23. (Currently Amended): The suspension according to claim 1, wherein the hollow particle is particles are embedded in a glucose solution.
- 24. (Currently Amended): The suspension according to claim 1, comprising a matrix, for example a linear conductive polymer, to contact the hollow particleparticles.

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25. (Currently Amended): The suspension according to elaim 2claim 1,

comprising a matrix, for example a linear conductive polymer, to cross-link at least one hollow

particle to another hollow particle.

26. (Previously Presented): The suspension according to claim 1, comprising

electron carriers such as ferrocene derivatives and viologen derivatives.

27. (Currently Amended): A battery having an electrolyte suspension

comprising a plurality of hollow particles in electrically conductive contact, said hollow particles

comprise a substrate permeable and electrically conductive outer shell and entrapped therein a

redox-reaction catalyzing enzyme catalyzing an enzymatic conversion of said substrate in said

hollow particles thereby liberating electronspolypeptide wherein the polypeptide is entrapped in

a hollow particle.

28. (Currently Amended): A nano-battery for the use in combination with a

microchip having an electrolyte suspension comprising a plurality of hollow particles in

electrically conductive contact, said hollow particles comprise a substrate permeable and

electrically conductive outer shell and entrapped therein a redox-reaction catalyzing enzyme

catalyzing an enzymatic conversion of said substrate in said hollow particles thereby liberating

electronspolyepetide, wherein the polyepetide is entrapped in a hollow particle.

29. (Cancelled).

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30. (Currently Amended): A fuel cell, comprising: an anode compartment including an anode; a cathode compartment including a cathode; and disposed within said anode compartment, within said cathode compartment, or between said anode compartment and said cathode compartment, the suspension comprising a <u>plurality of hollow particles in electrically conductive contact</u>, said hollow particles comprise a substrate permeable and electrically <u>conductive outer shell and entrapped therein a redox-reaction catalyzing enzyme catalyzing an enzymatic conversion of said substrate in said hollow particles thereby liberating electronspolypeptide, wherein the polypeptide is entrapped in a hollow particle.</u>

- 31. (Currently Amended): A device for detection of a solute—substrate comprising a suspension comprising a plurality of hollow particles in electrically conductive contact, said hollow particles comprise a substrate permeable and electrically conductive outer shell and entrapped therein a redox-reaction catalyzing enzyme catalyzing an enzymatic conversion of said substrate in said hollow particles thereby liberating electronspolypeptide, wherein the polypeptide is entrapped in a hollow particle.
- 32. (Currently Amended): The device according to claim 31, wherein the solute-substrate is glucose.
- 33. (Currently Amended): A method of producing electrical power comprising generating a current in a suspension comprising a <u>plurality of hollow particles in electrically conductive contact</u>, said hollow particles comprise a substrate permeable and electrically conductive outer shell and entrapped therein a redox-reaction catalyzing enzyme catalyzing an enzymatic conversion of said substrate in said hollow particles thereby liberating electronspolypeptide, wherein the polypeptide is entrapped in a hollow particle.
- 34. (Currently Amended): A method for preparing a polypeptide suspension comprising a plurality of hollow particles in electrically conductive contact, said hollow particles comprise a substrate permeable and electrically conductive outer shell and entrapped therein a

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redox-reaction catalyzing enzyme catalyzing an enzymatic conversion of said substrate in said hollow particles thereby liberating electrons, wherein the polypeptide is entrapped in a hollow particle comprising the steps of:

- (a) making an aqueous solution of bis(2,2'-bipyridine)ruthenium(II)bis(pyrazolyl);
- (b) injecting a solution containing polystyrene-*b*-poly(L-isocyanoalanine(2-thiophen-3-yl-ethyl)amide) in THF into the solution made in step (a).
- 35. (Currently Amended): The method according to claim 34, further comprising:
 - (c) placing the dispersion made in step (b) at 60°C;
 - (d) cooling the dispersion to room temperature; and
- (e) <u>filter-filtering</u> the dispersion of step (d) using a filter with a cutoff of 100 kDa.
- 36. (New): The suspension according to claim 1, wherein the hollow particles are embedded in an electrically conductive matrix.
- 37. (New): The suspension according to claim 36, wherein the electrically conductive matrix comprises ferrocene derivatives and/or viologen derivatives.